U.S. Department
of Transportation

**Pipeline and
Hazardous Materials
Safety Administration**

**East Building, PHH-23
1200 New Jersey Avenue SE
Washington, D.C. 20590**

COMPETENT AUTHORITY CERTIFICATION FOR A TYPE B(U)F FISSILE RADIOACTIVE MATERIALS PACKAGE DESIGN CERTIFICATE USA/0742/B(U)F-96, REVISION 1

REVALIDATION OF JAPANESE COMPETENT AUTHORITY CERTIFICATE J/167/B(U)F-96

This certifies that the radioactive material package design described is hereby approved for use within the United States for import and export shipments only. Shipments must be made in accordance with the applicable regulations of the International Atomic Energy Agency[1] and the United States of America[2].

1. Package Identification - JRF-90Y-950K.

2. Package Description and Authorized Radioactive Contents - as described in Japan Certificate of Competent Authority J/167/B(U)F-96, dated October 22, 2007 (attached).

3. Criticality - The minimum criticality safety index is 0.0. The maximum number of packages per conveyance is determined in accordance with Table X of the IAEA regulations cited in this certificate.

4. General Conditions -

   a. Each user of this certificate must have in his possession a copy of this certificate and all documents necessary to properly prepare the package for transportation. The user shall prepare the package for shipment in accordance with the documentation and applicable regulations.

   b. Each user of this certificate, other than the original petitioner, shall register his identity in writing to the Office of Hazardous Materials Technology, (PHH-23), Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, Washington D.C. 20590-0001.

   c. This certificate does not relieve any consignor or carrier from compliance with any requirement of the Government of any country through or into which the package is to be transported.

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[1] "Regulations for the Safe Transport of Radioactive Material, 1996 Edition (Revised), No. TS-R-1 (ST-1, Revised)," published by the International Atomic Energy Agency(IAEA), Vienna, Austria.

[2] Title 49, Code of Federal Regulations, Parts 100-199, United States of America.

d. This certificate provides no relief from the limitations for transportation of plutonium by air in the United States as cited in the regulations of the U.S. Nuclear Regulatory Commission 10 CFR 71.88.

e. Records of Quality Assurance activities required by Paragraph 310 of the IAEA regulations[1] shall be maintained and made available to the authorized officials for at least three years after the last shipment authorized by this certificate. Consignors in the United States exporting shipments under this certificate shall satisfy the applicable requirements of Subpart H of 10 CFR 71.

5. Special Conditions -

a. For shipments which enter into or transit the United States, all international approvals and revalidations, including Approval of Packaging and Confirmation of Packaging certificates issued by the government of Japan, shall be issued prior to the commencement of transport.

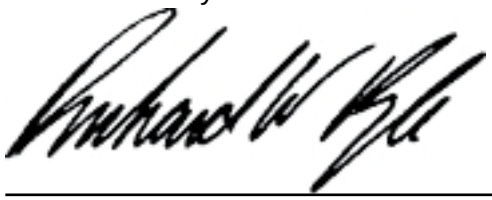
b. The package is not approved for air transport.

6. Marking and Labeling - The package shall bear the marking USA/0742/B(U)F-96 in addition to other required markings and labeling.

7. Expiration Date - This certificate expires on December 31, 2008.

This certificate is issued in accordance with paragraph 814 of the IAEA Regulations and Section 173.472 and 173.473 of Title 49 of the Code of Federal Regulations, in response to the November 19, 2007 petition by Edlow International Company, Washington, DC, and in consideration of other information on file in this Office.

Certified By:



Dec 20 2007

Robert A. Richard (DATE)
Deputy Associate Administrator for Hazardous Materials Safety

Revision 1 - Issued to revalidate Japanese Certificate of Approval No. J/167/B(U)F-96 of October 22, 2007.

IDENTIFICATION MARK
J/167/B(U)F-96

COMPETENT AUTHORITY
OF
JAPAN

CERTIFICATE OF APPROVAL OF PACKAGE DESIGN FOR THE TRANSPORT OF RADIOACTIVE MATERIALS

ISSUED BY MINISTRY OF EDUCATION, CULTURE,
SPORTS, SCIENCE AND TECHNOLOGY
2-5-1 MARUNOUCHI, CHIYODA-KU, TOKYO, JAPAN

CERTIFICATE OF APPROVAL OF PACKAGE DESIGN FOR THE TRANSPORT OF RADIOACTIVE MATERIALS

This is to certify, in response to the application (including Safety Analysis Report for J/167/B(U)F-96) by National University Corporation Tokyo Institute of Technology on April 15, 2005, that the package design described herein satisfies the design requirements of type B(U) fissile package, specified in the 2005 Edition of the Regulations for the Safe Transport of Radioactive Material (International Atomic Energy Agency, Safety Standards Series No. TS-R-1) and the Japanese rules based on the law on the
Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors.

COMPETENT AUTHORITY
IDENTIFICATION MARK : J/167/B(U)F-96

October 22, 2007
Date

for Kaoru Kohara
Yasutaka Moriguchi

Director General,
Science and Technology Policy Bureau,
Ministry of Education, Culture,
Sport, Science and Technology
Competent Authority of Japan for
Package Designs of Radioactive Materials

1. The Competent Authority Identification Mark
: J/167/B(U)F-96

2. Name of Package : JRF-90Y-950K

3. Type of Package : Type B(U) Package containing Fissile Material

4. Specification of Package
(1) Materials of Packaging : See the attached Table 1
(2) Total Weight of Packaging : 860kg or less
(3) Outer Dimensions of Packaging
(i) Diameter : Approximately 840 mm
(ii) Height : Approximately 1,800 mm
(4) Total Weight of Package : 950 kg or less
(5) Illustration of Package : See the attached Figure 1

5. Specification of Radioactive Contents : See the attached Table 2

6. Description of Containment System
Containment system consists of inner shell main body and inner shell lid.
Silicon rubber O-ring is used for containment between inner shell main body and inner shell lid.

7. For Package containing Fissile Materials,
(1) Restrictions on Package
(i) Restriction Number "N" : No restriction
(ii) Array of Package : No restriction
(iii) Criticality Safety Index (CSI) : 0
(2) Description of Confinement System
Confinement system consists of a mass of fissile uranium material and the inner shell.
(3) Assumptions of Leakage of Water into Package
No water will leak into or out of any void spaces of inner shell body not only during routine transport but also under normal and accident conditions even if the protective outer shell is fractured and deformed.

(4) Special Features in Criticality Assessment : Not applicable

No special features is provided, because the subcriticality is evaluated upon the assumption that the inner shell is submerged in condition by water under the normal conditions and the accident conditions in transport.

8. For Type B(M) Packages, a statement regarding prescriptions of Type B(U) Package that do not apply to this Package : Not applicable

9. Assumed Ambient Conditions

(1) Ambient Temperature Range : −40℃ ～ 38℃

(2) Insolation Data : Based on Table XI. of IAEA Regulation

10. Handling, Inspection and Maintenance

(1) Handling instructions

(ⅰ)Package should be handled carefully in accordance with the schedule and procedures established properly taking all possible safety measures.

(ⅱ) Package should be handled using appropriate lifting devices such as forklift or crane.

(ⅲ)When packaging is stored outdoors, it should be covered with an appropriate waterproof sheet, avoiding the situation where it is placed directly on the ground.

(2) Inspections and Maintenance of Packaging

The packaging shall be handled with care in accordance with the operating manual.

In order to ensure the integrity of packaging, the following inspection shall be performed at least once a year (In case frequency of transport exceed 10 times a year, the inspections shall be done at least once per every 10 times.).

(ⅰ) Visual Appearance Inspection (ⅱ)Pressure Durability Inspection

(ⅲ)Maintenance of O-ring used for Containment System

(ⅳ)Leakage Rate Measurement Inspection (Ⅴ)Subcriticality Inspection

(3) Action prior to Shipment

The following inspections should be performed prior to each shipment.

(ⅰ) Visual Appearance Inspection (ⅱ) Lifting Inspection

(ⅲ) Weight Measurement Inspection (ⅳ) Surface Contamination Inspection

(ⅴ) Dose Rate Measurement Inspection (ⅵ) Subcriticality Inspection

(ⅶ) Contents Specification Check Inspection

(ⅷ) Leakage Rate Measurement Inspection

(4) Precautions for Loading of Package for Shipment

Loading of the packages shall be performed such that the package will not move, roll down or fall down from the loading position during transport.

11. Issue Date and Expiry Date

(1) Issue Date : Aug. 20, 2007

(2) Expiry Date : Dec. 31, 2008

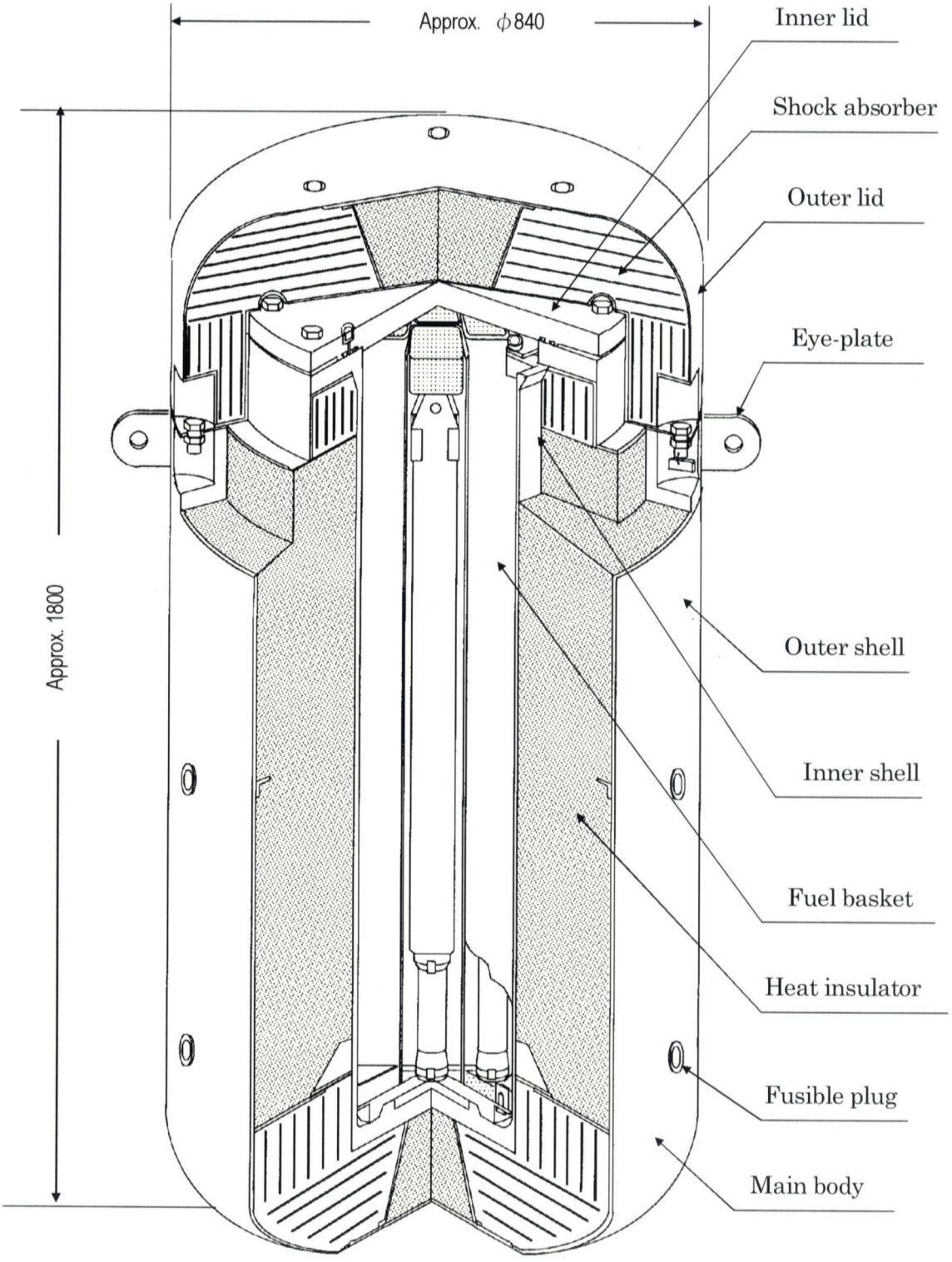


Figure 1 Package Illustration

Unit : mm

Table 1 Material of packaging

Name of Part	Material
(1) Main body	
・Outer shell	Stainless steel
・Inner shell	Stainless steel
・Eye plate	Stainless steel
・Heat insulator	Hard polyurethane foam
・Shock absorber	Balsa wood
・O-ring	Silicon rubber
・Fusible plug	Solder, Stainless steel
(2) Inner Lid	
・Inner Lid	Stainless steel
(3) Fuel Basket	
・Rectangular pipe	Stainless steel
・Upper flange	Stainless steel
・Lower flange	Stainless steel
・Cushion rubber	Silicon rubber
(4) Outer Lid	
・Outer cover plate	Stainless steel
・Inner cover plate	Stainless steel
・Heat insulator	Hard polyurethane foam
・Shock absorber	Balsa wood
・Fusible plug	Solder, Stainless steel

Table 2 Specification of Contents

Item \ Fuel type	Type 1-1 (Fresh fuel)			Type1-2 (Equivalent of fresh fuel)	Type 2 (Lowly irradiated fuel)	
	LEU fuel	MEU fuel	HEU fuel	LEU fuel	MEU fuel	HEU fuel
Kind	Uranium-Silicon Aluminum dispersion alloy or Uranium-Aluminum dispersion alloy	Uranium-Aluminum dispersion alloy	Uranium-Aluminum alloy	Uranium-Aluminum alloy	Uranium-Aluminum dispersion alloy	Uranium-Aluminum alloy
Gross Weight of Uranium (kg-U/Package)	24.81or less	7.28 or less	1.83 or less	8.20 or less	7.21 or less	3.18 or less
Gross Weight of Contents(kg/Element)	9.2 or less	7.6 or less	6.3 or less	9.1 or less	8.3 or less	8.3 or less
Total Activity of Contents (GBq/ Package)	29.8 or less				17.3 or less	
Main nuclide (GBq / Package)	^{234}U : 28.6 or less ^{235}U : 0.38 or less ^{236}U : 0.59 or less ^{238}U : 0.24 or less				^{234}U : 16.2 or less ^{235}U : 0.25 or less ^{236}U : 0.29 or less ^{238}U : 0.05 or less The other nuclide : 0.52 or less	
physical state	Solid					
U-235 Enrichment (wt%)	19.95 or less	46 or less	93.3 or less	19.90 or less	46.0 or less	90.0 or less
Burnup (%)	-				1.76×10^{-5} or less	7.23×10^{-5} or less
Total Heat Generation (W/Package)	-				3.29×10^{-5} or less	4.30×10^{-5} or less
Cooling Time (Day)	-				1460 or more	5475 or more
Number of Fuel Elements (Element/Package)	10 or less					

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1200 New Jersey Avenue SE
Washington, D.C. 20590**

CERTIFICATE NUMBER: USA/0742/B(U)F-96, Revision 1

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